

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing

(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION

See paragraph 2 below

International application No.
PCT/EP2004/009848

International filing date (day/month/year)
03.09.2004

Priority date (day/month/year)
04.09.2003

International Patent Classification (IPC) or both national classification and IPC
H04B10/18

Applicant
DEUTSCHE TELEKOM AG

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☒ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITYInternational application No.
PCT/EP2004/009848

IAP20 Rec'd 12 JAN 2006

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/EP2004/009848

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-16
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-3,5-9,12-14,16
Industrial applicability (IA)	Yes: Claims	1-16
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VI Certain documents cited

1. Certain published documents (Rules 43bis.1 and 70.10)

and / or

2. Non-written disclosures (Rules 43bis.1 and 70.9)

see form 210

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

PCT/EP2004/009848

Re Item V**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

Reference is made to the following document:

D1: US-B1-6 583 903 (WAY DAVID G ET AL) 24 June 2003 (2003-06-24)

D2: DJUPSJÖBACKA A.: "Calculation of Signal Outage due to Polarization Mode Dispersion" IEE PHOTONICS TECHNOLOGY LETTERS, vol. 13, no. 7, July 2001 (2001-07), pages 660-662, XP002315789

1. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-3,5-9,12-14,16 does not involve an inventive step in the sense of Article 33(3) PCT.

1.1 Claim 1

1.1.1 The document D1 is regarded as being the closest prior art to the subject-matter of claim 1 and discloses (the references in parentheses applying to this document): a process for determining the PMD-induced outage probability of an optical transmission system (column 15, lines 45-50) which includes an optical transmission line comprising at least one optical input and one optical output during a specified/specifiable observation period (column 2, lines 33-36) and within which at least in one position of the transmission line the polarisation states of the optical transmission system and/or the optical signals transmitted by the optical transmission system are changed by bringing a targeted intervention to bear (column 16, lines 9-12; 14-16) and at a second position, which is interposed at least one place downstream from the first position of the optical transmission line (column 15, lines 52-53), a specified/specifiable signal characteristic is qualitatively measured and checked for compliance with a specified/specifiable threshold condition (column 15, lines 52-53; column 16, lines 6-7; 12-32) and the PMD-induced outage probability of the optical transmission system is calculated on the basis of the ratio between the length of time during which the measured signal characteristic fails to meet the threshold condition and the length of the observation period.

1.1.2 The subject-matter of claim 1 therefore differs from this known method for determining the PMD-induced outage probability of an optical transmission system in that: the PMD-induced outage probability of the optical transmission system is calculated on the

basis of the ratio between the length of time during which the measured signal characteristic fails to meet the threshold condition and the length of the observation period.

1.1.3 The problem to be solved by the present invention may therefore be regarded as how to determine the PMD-induced outage probability of an optical transmission system.

1.1.4 The solution proposed in claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons: The calculation of PMD-induced outage probability on the basis of the ratio between the length of time during which the measured signal characteristic fails to meet the threshold condition and the length of the observation period has already been defined in the prior art (see as example document D2, column 1, paragraph 3).

1.2 Claim 16

The same reasoning applies, mutatis mutandis, to the subject-matter of the corresponding independent claim 16, which therefore is also considered not inventive.

1.3 Dependent claims 2-3,5-9,12-14

Dependent claims 2-3,5-9,12-14 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step, see document D1 and the corresponding passages cited in the search report.

Other remarks regarding clarity (Article 6 PCT)

2. Independent claims 1,16 are not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art (document D1) being placed in the preamble (Rule 6.3(b)(I) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).

3. The use of parenthesis is allowed in a claim only as reference signs.